

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

June 13, 2006

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor

THRU: Wayne H. Western, Team Lead

FROM: Dana Dean, P.E., Senior Reclamation Hydrologist

RE: Prep Plant & Refuse Pile Phase I and Phase III, Foundation Coal Company, Willow Creek Mine, C/007/0038, Task ID #2424

SUMMARY:

Foundation Coal Company applied for Phase I bond release for 49.1 acres associated with the Schoolhouse Canyon Refuse Pile, and Phase III bond release for 46.2 acres associated with the preparation plant area of the Willow Creek Mine on September 19, 2005. They completed reclamation of the areas in the spring of 2004. Postmining land use for the Phase III bond release area is industrial; it will be used by the Price River Water Improvement District (PRWID).

This technical memorandum discusses the hydrology related issues pertaining to the application.

The bond release application meets the requirements of the relevant hydrology regulations. The Division should approve it and incorporate it into the MRP.

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TECHNICAL ANALYSIS:

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The Permittee met the requirements of R645-301-731. The bond release application includes maps and descriptions, indicating how they met the relevant hydrology requirements. The approved reclamation plan takes into account site specific hydrologic conditions, and contains the steps the Permittee took during coal mining and reclamation operations, to meet the minimum requirements for Phase I (refuse pile) and Phase III (prep plant) bond release, by:

- Minimizing disturbance to the hydrologic balance within the permit and adjacent areas.
- Preventing material damage outside the permit area.
- Supporting approved post mining land use in accordance with the terms and conditions of the approved permit and performance standards of R645-301-750.
- Complying with the Clean Water Act (33 U.S.C. 1251 et seq.)
- Meeting applicable federal and Utah water quality laws and regulations.

The plan also includes the measures the Permittee took to:

- Avoid acid or toxic drainage.
- Prevent, to the extent possible (using the best technology currently available.) additional contributions of suspended solids to stream flows.
- Provide water treatment facilities when needed.
- Control drainage.

The approved reclamation plan (MRP) specifically addresses any potential adverse hydrologic consequences identified in the PHC, and includes preventative and remedial measures.

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The Division has not required additional preventative, remedial or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented.

The following sections of this technical memo discuss the specific ways in which the Permittee has met the regulations, as they pertain to the application.

Diversions: Perennial and Intermittent Streams

The Permittee met the requirements of R645-301-742.320 and subsections by designing all permanent diversions for intermittent flows (CGRD-1 through CGRD-5) to safely pass the runoff from a 100-year, 6-hour precipitation event. They present all design calculations and other pertinent information in Appendix 3.4N of Exhibit 19.

Diversions: Miscellaneous Flows

The Permittee met the requirements of R645-301-742.330 and subsections by designing all permanent diversions for ephemeral flows (CGRD-6 through CGRD-10) to safely pass the runoff from a 10-year, 6-hour precipitation event. They present all design calculations and other pertinent information in Appendix 3.4N of Exhibit 19.

Sediment Control Measures

The Permittee met the requirements of R645-742 and relevant subsections by using the best technology currently available (BTCA) to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area, met the applicable effluent limitations, and minimize erosion to the extent possible.

The sediment control measures the Permittee used include (Sec. 3 .4-6(4)AB of Appendix 3.4N):

- Incorporation of hay and/or straw mulch into the soil.
- Deep gouging.
- Seeding.
- Mulching after seeding.
- Chemically anchoring the final mulch layer.

Impoundments

One impoundment will remain in the old preparation plant area, the Raw Water Pond. This pond was designed and implemented pre-SMCRA, but has been part of the Willow Creek Permit area. Since no original plans, or as-built information exist in relation to this pond, the

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Permittee had a professional engineer certify that it is currently stable and perform a safety-factor analysis.

The Permittee met the R645-301-552.200, concerning permanent impoundments (in regard to the Raw Water Pond) as described below.

The Permittee met the requirements of R645-301-512.240 by having a professional engineer, who uses current, prudent, engineering practices and who is experienced in the design and construction of impoundments certify the design of the Raw Water Pond according to R645-301-743 (See EarthFax letter to PMC dated June 12, 2006).

The Permittee met the requirements of R645-301-514.300 by having the Raw Water Pond inspected at by a professional engineer who certified the inspection. They will continue this practice until bond release, as required, they have noted no instabilities or hazards to date.

No notification to the division of potential impoundment hazards has been necessary for the Raw Water Pond.

The Permittee met the requirements of R645-301-533.100 through 533.600 by

- Certifying that the Raw Water Pond has a minimum static safety factor of 1.3 for a normal pool, with steady state seepage saturation conditions (See EarthFax letter to PMC dated June 12, 2006).
- Providing slope protection against surface erosion at the site, and sudden drawdown (See EarthFax letter to PMC dated June 12, 2006).
- Vegetating faces of embankments and surrounding areas, and lining/rip-rapping faces where water is impounded.

No highwalls are in the near vicinity of the Raw Water Pond, and it does not meet the criteria of MSHA, 30 CFR 77.216(a), or NRCS Class B or C.

The Permittee met the requirements of R645-301-542.400 by properly maintaining the Raw Water Pond, and ensuring that it meets the requirements of the approved reclamation plan for permanent structures and impoundments. No renovations are necessary to meet the requirements of the R645 Rules and to conform to the approved reclamation plan.

The Permittee met the requirements of R645-301-733.220 through 224 by gaining approval from the Division (in this amendment) to leave the Raw Water Pond as a permanent impoundment based upon the following demonstration:

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- The size and configuration of the Raw Water Pond is adequate for its intended purpose (See EarthFax letter to PMC dated June 12, 2006).
- The quality of impounded water will be suitable on a permanent basis for its intended use and, there will be no discharges from the impoundment.
- The water level will be sufficiently stable and be capable of supporting the intended use.
- Final grading provides for adequate safety and access for proposed water users.
- The Raw Water Pond will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational or domestic uses.
- The Permittee has delivered a letter to the Division where PRWID accepts full responsibility for maintenance of the pond.

The Permittee met the requirements of R645-301-743 by

- Certifying the Raw Water Pond as described under R645-301-512.
- Ensuring that the Raw Water Pond has adequate freeboard to resist overtopping by waves and by sudden increases in storage volume (See EarthFax letter to PMC dated June 12, 2006).
- Designing the Raw Water Pond with a spillway that can safely pass a 25-year, 6-hour design precipitation event (See EarthFax letter to PMC dated June 12, 2006).
- Inspecting the Raw Water Pond, certifying the inspection, and notifying the Division of inspection results (See EarthFax letter to PMC dated June 12, 2006).

The Raw Water Pond is suitable for the approved postmining land use of industrial.

Findings:

The Permittee has met the minimum requirements of the Reclamation Plan: Hydrologic Information section of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

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Final Surface Configuration Maps

The Permittee met the requirements of R645-301-542.300 by depicting the as-built final surface configuration (including cross-sections, profiles and watershed maps) for the Preparation Plant and Refuse Pile areas on Exhibits 3.4-13AB through 3.4-16AB.

Reclamation Treatments Maps

The Permittee met the requirements of R645-301-731.720 by depicting all diversions and treated areas on Exhibit 3.4-17AB.

Certification Requirements.

The Permittee met the requirements of R645-301-542.310, R645-301-731.720, and R645-301-512 by having a professional engineer certify Exhibits 3.4-13AB through 3.4-17AB.

Findings:

The Permittee has met the minimum requirements of the Maps, Plans, and Cross-Sections of Reclamation Operations section of the Regulations.

RECOMMENDATIONS:

The application meets the requirements of the relevant hydrology regulations. The Division should approve Phase I and Phase III bond release.